METHOD FOR TRANSMITTING MESSAGES IN A TELECOMMUNICATION NETWORK

FIELD OF THE INVENTION

The present invention relates to a method for transmitting messages in a telecommunications network, in which a first message service and a second message service are available.

BACKGROUND INFORMATION

Although it may be used in principle for any multimedia message service and telecommunications network, an exemplary embodiment according to the present invention and the problem on which it is based are explained with regard to the MMS service (MMS=Multimedia Messaging Service), which is specified within the framework of the standardization of 3GPP (3rd Generation Project Program) and may be used, for example, in the GSM system (GSM=Global System for Mobile Communications) and the UMTS system (UMTS=Universal Mobile Telecommunication System).

There exists short message services, which may be used to send a short message to a subscriber of the telecommunications network without first having to establish a telecommunications connection to the subscriber.

This may be important in mobile radio communication systems such as GSM, since their subscribers may not be reached. In this context, incoming short messages for the subscriber may be stored by a telecommunications carrier of the telecommunications network, when the subscriber cannot be reached. At a later time, when the subscriber may be reached again, the short message is then automatically transmitted to the subscriber.

The SMS service (SMS=Short Message Service) is a short message service following the GSM standard. In this context, up to 160 7-bit ASCII message characters (ASCII=American Standard Code for Information Interchange) may be transmitted in a short message. Concatenated short messages permit the transmission of longer texts. Since only text transmission according to the GSM standard is provided, binary data, such as audio data, image data, etc., should be converted to text format when transmitted, and reconverted to binary format after being received.

In this process, it may only be possible to access the entire content of a short message. In this manner, data of the short message, which the addressed subscriber may not desire, may be transmitted to the subscriber, who only receives an overview of the content of the short message after having received the complete short message from the telecommunications carrier.

FIG. **4** shows the principal structure of a first type A of an SMS short message in GSM.

In general, an SMS short message SM of the first type A includes a header SM-H and a data portion SM-D. Header SM-H includes signaling inputs and the receiver address of a message to be sent, and the sender address of a message to be received. Data portion SM-D includes the actual message to be transmitted.

Transmitters and receivers are identified by the MSISDN (Mobile Subscriber Integrated Services Digital Network) number in accordance with GSM 03.40 V7.1.0 (11/1998) Technical Realization of the Short Message Service (SMS); Point-to-Point (PP) and 3G 23.040 V3.2.0 (10/1999) Technical Realization of the Short Message Service (SMS); and Point-to-Point (PP).

A second header (user data header SM-DH) may optionally be present in data portion SM-D. If so, then the presence of the second header is indicated by a corresponding signaling input in header SM-H. Various types of SMS user data headers are already specified in GSM 03.40/3G 23.040. Different types of user data headers SM-DH are distinguished by an identification element in user data header SM-DH.

The concatenation of short messages SM may be controlled, for example, by a user data header SM-DH (identifier: "08" hexadecimal). A further example of a user data header SM-DH is the "Wireless Control Message Protocol", which is indicated by the identifier "09" in hexadecimal notation. This may be required for the Wireless Application Protocol (WAP).

FIG. **5** shows the principal structure of a second type B of an SMS short message in GSM.

In this case, an SMS short message SM' may include a header SM-H' and a data portion SM-D'. Header SM-H' includes signaling inputs and the receiver address of a message to be sent, and the sender address of a message to be received. Data portion SM-D' includes the actual message to be transmitted.

Header SM-H' includes a field, which is 8 bits wide and referred to as the TP-PID (Transfer Protocol—Protocol Identifier). Parameter TP-PID may be used to establish the applied protocol. For example, it may be used to realize telematic interworking or to determine how messages are handled in the cellular phone or SMSC (short message service center).

In telematic interworking, the TP-PID is a bit pattern of the form <00xxxxx>, that is, bit **7**=0, bit **6**=0, and bit **5**=1.

If this bit pattern appears in the TP-PID of header SM-H' of an SMS short message SM' sent by a cellular phone, then the SMSC (Short Message Service Center) is induced to convert the present SMS to a different data format and/or to execute a certain communications protocol. In this manner, e.g., a fax of the group 3 may be sent by a cellular phone to a fax machine in the fixed network. In this case, the value of the entire TP-PID octet is <00100010>.

If this bit pattern appears in the TP-PID of header SM-H' of an SMS short message SM' received by a cellular phone, then the SMSC has received a message from a non-SMS telematic service and converted it to an SMS. In this manner, e.g., an Internet e-mail may be sent from any e-mail account in the fixed network, via the service center, to a cellular phone. In this case, the value of the received TP-PID octet is <00110010>.

In the case of handling messages, the TP-PID is a bit pattern of the form <01xxxxxx>, that is, bit **7**=0, and bit **6**=1.

If this bit pattern appears in the TP-PID of the header SM-H' of an SMS short message SM' received by a cellular phone, then the SMSC causes the cellular phone to handle the message in a certain manner. In this manner, e.g., a cellular phone may be induced by the SMSC to relay the received message to the SIM (subscriber identity module), where it is then processed further in accordance with SIM application toolkits. In this case, the value of the received TP-PID octet is <01111111>.

If this bit pattern appears in the TP-PID of the header SM-H' of an SMS short message SM' sent by a cellular phone, then, e.g., in the case of the bit pattern <01000001>, the SMSC is caused to overwrite an already present short message of the same cellular phone with the received short message.

The MMS service is intended to permit the transmission and reception of multimedia messages, using a cellular